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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,159	01/29/2004	Byoung-Ok Min	P/923-374	7772
2352 7590 08/28/2007 OSTROLENK FABER GERB & SOFFEN 1180 AVENUE OF THE AMERICAS NEW YORK, NY 100368403			EXAMINER GUHARAY, KARABI	
			ART UNIT 2879	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/769,159

Applicant(s)

MIN, BYOUNG-OK

Examiner

Karabi Guharay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment, filed on 6/7/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 7-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Amendment***

Amendment, filed on 6/07/07 has been considered and entered.

***Claim Objections***

Claims 9-11 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 2-4 respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Applicant is advised that should claims 2-4 be found allowable, claims 9-11 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-8, 12-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claims 7-8 & 12-13 recites "the fixed mirror" however there is no antecedent basis for this in the claims. However, it is not clear that whether applicant is calling "rear mirror fixed to the bulb stem" as **fixed mirror** or having a separate fixed mirror.

For continued examination purpose it is considered that by "the fixed mirror" applicant refers to "a rear mirror fixed to the stem".

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4, 7-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA (applicant's admitted prior art), and further in view of Ury et al. (US 5334913).

Regarding claim 1, AAPA discloses (see Fig 1) a lighting apparatus using microwave energy, comprising a casing (10), a reflector (80) fixed to an outer surface of the casing; a magnetron (30) disposed inside the casing for generating microwave

energy; a wave guide (40) for guiding the energy; a resonator (50) disposed inside the reflector (80) and providing a resonant region in which the microwave energy is resonated; a bulb (60) having a stem (62) disposed inside the resonator (50) and filled with a material which emits light when excited by microwave energy, and a rear mirror (70) is fixed to the bulb stem for forwardly reflecting light rearwardly emitted from the emitter (see relevant pages for the description of Fig 1).

But, AAPA fails to teach that the rear mirror integrally fixed to the bulb and integrally rotatable together with the bulb when the bulb is rotated.

However, in the same field of lighting apparatus using microwave energy, Ury et al. disclose that the rear mirror (21 of Fig 1) is integrally fixed to the bulb stem and integrally rotates as the bulb rotates (lines 10-19 of column 4) and further teaches that such arrangement of fixing the rear mirror to the stem provides first of all no slipping through the hole and further facilitated the removal of the bulb from the rear end without removing the envelope.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to fix the rear mirror integrally with the stem such that while stem is rotating the mirror will also rotate and this will avoid slipping of rear mirror through the hole of the AAPA device.

Regarding claims 2, 7 & 9, Ury et al. discloses that the rear mirror is formed in a hemispherical shape having a curved shape (see Fig.1, item 21; column 3, lines 58-68). The same reason for combining art as in claim 1 applies.

As to claims 3 & 10, Ury et al. disclose that the bulb is positioned at a focal point of the

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curved surface of the rear mirror (column 3, lines 58-68). The same reason for combining art as in claim 1 applies.

Regarding claims 4 & 11, Ury et al. disclose that the rear mirror is made of a quartz material (column 3, lines 8-13). The same reason for combining art as in claim 1 applies.

Regarding claim 8, Ury et al. disclose that the bulb is positioned at the focal point of the curved surface of the fixed mirror (lines 58-61 of column 3). The same reason for combining art as in claim 1 applies.

Regarding claims 12-13, Ury et al. discloses that the fixed mirror is made of ceramic material (lines 11-12 of column 3), however, does not specifically mention the particular ceramic materials like alumina, silicon nitride or aluminum nitride.

However, these are well known ceramic materials used for mirror purposes and have low dissipation for microwave energy, thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate one of the known ceramic materials like alumina, silicon nitride or aluminum nitride in the device of Ury et al. since selection of known material for known purposes is within the skill of art.

Regarding claim 14, AAPA in view of Ury et al. discloses all the limitations of claim except for a fixed mirror fixed to the casing having a hole in which a bulb stem rearwardly extended from the bulb and a diameter of the hole is formed to be smaller than the width of the rear mirror.

However, Ury et al. teaches that the rear mirror could comprise plurality of pieces including outer and inner wherein the outer is fixed to the casing which can be considered as the fixed mirror and teaches that plurality of rear mirrors can be designed for optical consideration, thus it would have been obvious to one having ordinary skill in the art to have the fixed mirror having hole diameter smaller than the width of the first rear mirror (inner rear mirror) so as to cover the whole back area of the bulb, which will increase the amount of reflection of lights from the back to the front side of the lighting.

Regarding claims 15-16, Ury et al. disclose that the plurality of rear mirrors is formed of hemispherical shape having a curved surface.

Regarding claims 17-19, Ury et al. disclose that the mirror is formed of quartz or ceramic (lines 3-13 of column 3) and the bulb is positioned at a focal point of the curved surface of the rear mirror (lines 58-61 of column 3).

Regarding claim 20, Ury et al. discloses that the fixed mirror is made of ceramic material (lines 11-12 of column 3), however, does not specifically mention the particular ceramic materials like alumina, silicon nitride or aluminum nitride.

However, these are well known ceramic materials used for mirror purposes and have low dissipation for microwave energy, thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate one of the known ceramic materials like alumina, silicon nitride or aluminum nitride in the device of Ury et al. since selection of known material for known purposes is within the skill of art.

### ***Response to Arguments***

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***Response to Arguments***

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is 571-272-2452. The examiner can normally be reached on Monday-Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*K. Guharay*

Karabi Guharay  
Primary Examiner  
Art Unit 2879

8/9/07